

Newer Dell EMC™ PowerEdge™ Servers Amp Up Your Microsoft® SQL Server® Performance

SQL Server Performance Is Key for Business Success

Many small-to-medium-sized businesses (SMBs) rely on Microsoft® SQL Server® for day-to-day, mission-critical operations. For businesses running SQL Server on a standalone platform, the underlying server capabilities are key to maximizing performance, particularly in the face of explosive data growth and the need for faster results for customers or internal operations. Processors, memory, networking, RAID controllers, and storage media all play essential roles in affecting transaction times.

Newer Dell EMC™ PowerEdge™ R750 servers offer significant upgrades in these and other components compared to the previous-generation platform. But are those upgrades enough to warrant a server refresh?

Testing by Prowess Consulting demonstrates a clear benefit from deploying newer-generation platforms. Our results showed a 7x gain in new orders per minute (NOPM) for the newer Dell EMC™ platform, compared to the older-generation system.¹ In addition, rebuild times for the RAID array were up to 5.25x faster for the newer server platform.¹

Up to
7x
more

NOPM with a Dell EMC™ PowerEdge™ R750 server, compared to a Dell EMC PowerEdge R740xd server¹

Up to
5.25x
faster

RAID array rebuilds with a Dell EMC PowerEdge R750 server, compared to a Dell EMC PowerEdge R740xd server¹

Broadcom® RAID Controllers Accelerate Data Access

The Dell™ PowerEdge RAID Controller (PERC) H755N front NVM Express® (NVMe®) adapter in the Dell EMC™ PowerEdge R750 is based on the Broadcom® SAS3916 Tri-Mode RAID on Chip (RoC) controller. These are the first RAID controllers from Dell Technologies to offer both PCIe® Gen4 host and PCIe Gen4 storage interfaces, which deliver double the bandwidth and 75 percent more input/output (I/O) operations per second (IOPS), compared to previous-generations.²

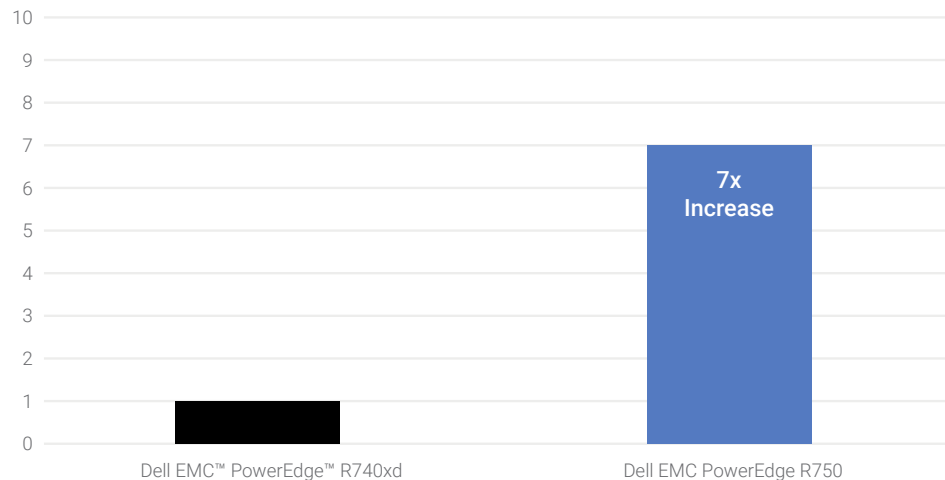
These controllers provide PCIe (NVMe) data-transfer rates of up to 16 gigatransfers per second (GT/s) per lane, in addition to reliability, high performance, and fault-tolerant disk subsystem management and support for RAID levels 0, 1, 5, 6, 10, 50, and 60.

The Dell EMC PowerEdge R750 server used in our testing paired the Dell PERC H755N NVMe adapter with all-NVMe solid-state drives (SSDs) to maximize storage bandwidth and throughput.

More New Orders per Minute

Our testing used a Microsoft® benchmarking tool to compare NOPM between a Dell PowerEdge R740xd platform and a Dell EMC PowerEdge R750 platform. Both servers were configured with identical RAID settings, and each had a SQL Server 2019 database with 1,400 warehouses and 100 threads. Results showed a clear winner, with the newer platform demonstrating a 7x increase in performance.¹

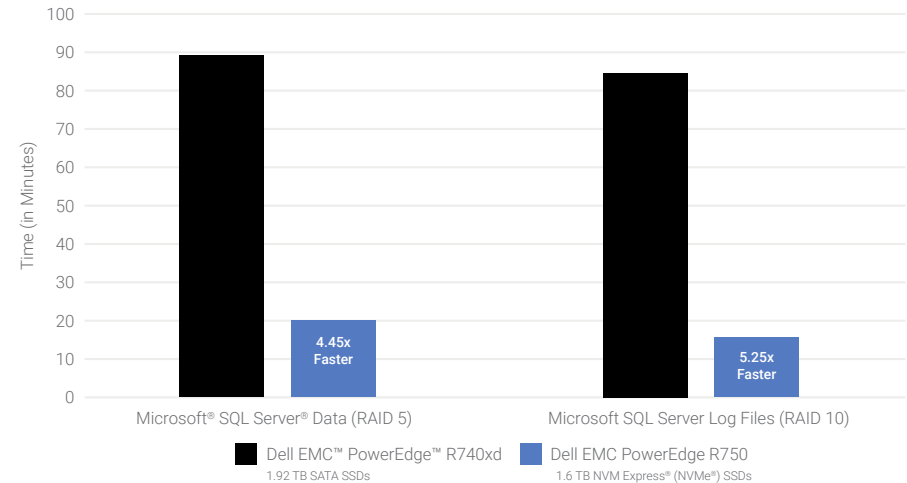
New Orders per Minute (NOPM) Normalized Performance



Lower RAID Rebuild Times

To minimize downtime, RAID arrays' rebuild times need to be as low as possible in the event of a drive failure or replacement. Because of this, Prowess decided to compare rebuild times for the two systems. The newer generation RAID controllers in the Dell EMC PowerEdge R750 led to significant time savings.¹

RAID Array Rebuild Times (Lower Is Better)



Dell Technologies Management and Services

The Dell EMC PowerEdge R750 is designed to deliver high performance for demanding workloads. Powered by 3rd Generation Intel® Xeon® Scalable processors, the PowerEdge R750 server is a dual-socket/2U rack server with support for eight channels of memory per CPU and up to 32 DDR4 DIMMs at 3,200 megatransfers per second (MT/s) speeds. In addition, the PowerEdge R750 supports PCIe Gen4 and up to 24 NVMe drives (with an option for four additional rear-mounted drives) with improved air-cooling features and optional Direct Liquid Cooling (DLC) to support increasing power and thermal requirements. This makes the PowerEdge R750 server an ideal server for data center standardization on a wide range of workloads, including transactional database workloads such as SQL Server.

Learn More

Get the full story by reading our paper, **“Can Newer Dell EMC™ Servers Offer Significantly Better Performance for Microsoft® SQL Server®?”**

¹ Based on head-to-head comparisons of Dell EMC™ PowerEdge™ R750 vs. Dell EMC PowerEdge R740xd.

² Source: Broadcom internal data, provided by Dell Technologies.

The analysis in this document was done by Prowess Consulting and commissioned by Dell Technologies.

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